Case Report

ISSN: 1735-0344 *Tanaffos 2011; 10 (4): 64-68*

TANAFFOS

Melioidosis: It is not Far from here

Ilad Alavi Darazam [1,2], Arda Kiani [1], Shahin Ghasemi [3,4], Hosein Sadeghi [4], Farhad Alavi [4], Mohammad Jafar Moosavi [4], Asghar Akbari [4], Mojtaba Shahidi [4], Mehran Jalali [4], Vahid Pourfarziani [4], Hossein Saba [4], Shahram Nazari [4], Forozan Mohammadi [1], Seyed Davood Mansouri [2,4]

[1] Chronic Respiratory Disease Research Center, [2] Clinical Tuberculosis and Epidemiology Research Center, NRITLD, Masih Daneshvari Hospital, Shahid Beheshti University of Medical Sciences, [3] Tehran University of Medical Sciences , [4] Erfan General Hospital, Tehran- Iran.

Received: 2 August 2011
Accepted: 26 September 2011

Correspondence to: Mansouri SD
Address: NRITLD, Shaheed Bahonar Ave, Darabad, TEHRAN 19569, P.O:19575/154, IRAN
Email address: dmansouree@yahoo.com

In the modern world, with developed traveling facilities, tourism is an important factor in emerging new infectious diseases in non-endemic areas. Therefore, the epidemiology of infections is a considerable issue for physicians and should be taken into account.

We report a case of melioidosis in a 69-year-old Iranian man during his trip to Southeast Asia.

On admission, he was febrile with tachycardia and tachypnea and had diabetes mellitus and hypertension since eleven years ago.

Bronchoscopy and bronchoalveolar lavage (BAL) were performed. Blood and BAL cultures revealed heavy growth of *Burkholderia pseudomallei*.

According to the aforementioned culture results, the patient was treated with meropenem and TMP-SMX, while other antibiotics were discontinued.

After 3 weeks, the patient was discharged with stable status and normal pulmonary function; and eradication therapy with TMP-SMX continued for about 3 months. The control lung CT scan after one month demonstrated significant improvement

Key words: Meloiodosis, Infection, *Burkholderia pseudomallei*

INTRODUCTION

Melioidosis is an uncommon bacterial infection caused by *Burkholderia pseudomallei* (formerly *Pseudomonas pseudomallei*), an oxidase-positive, motile, aerobic bacillus. It is a common endemic infection in Southeast Asia and Northern Australia.

The main route of transmission is percutaneous inoculation; but inhalation, and rarely, ingestion are also among the routes of transmission (1). Clinical cases of melioidosis in endemic regions are frequently seen during wet and rainy seasons and is attributed to inoculation of wounds by muddy soils (1,2).

The clinical spectrum of disease varies from asymptomatic illness and subclinical infection to localized involvement and septicemic cases (3). Pneumonia is the most common presentation (2-4) and mortality rate reaches about 90% in fulminant sepsis.

We report a case of pulmonary melioidosis associated with septicemia in a 69 year-old diabetic man during a trip to Southeast Asia.

CASE SUMMARIES

A 69-year-old man was admitted due to fever, chills and lassitude from 4 days ago. He was well until 4 days ago when fever developed in the last day of his trip to Southeast Asia (Malaysia and Thailand). Then, he traveled to Dubai and after three days with fever and chills, he

developed malaise, lassitude and sweating. He was seen in a hospital and after primary care discharged with Amoxicillin-Clavulanic acid. During flight to Tehran, he was lethargic and after arrival, he was immediately transferred to a hospital.

On admission, he was febrile (body temperature: 39.5°C) with tachycardia, tachypnea, and normal blood pressure. Other his physical examinations revealed no abnormality, except for fine scars of healed abrasions related to walking on a beach on his first day in Thailand (Figure 1).

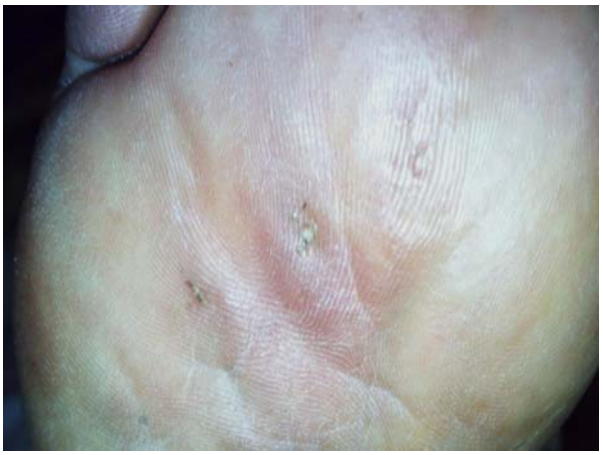

Figure1. Two fine scars on the sole

The patient had diabetes mellitus and hypertension since eleven years ago, and also nasal polyps and sleep disorder. His medications included diltiazem and glibenclamide. He was neither a drinker nor a smoker and did not use any illicit drugs. Allergic history was unremarkable.

Laboratory analysis showed leukocytosis (17,000/ ml)with a shift to the left, normal renal and liver function tests, with 470 mg/dl random glucose level, ESR 42mm/hr and LDH 630 mg/dl. Repeated cardiac markers including creatinine kinase-MB and troponin I were within the normal ranges. Peripheral blood smear was negative for malaria.

Chest X-ray (CXR) was obtained (Figure 2). Based on roentgenographic findings (Figures 2 and 3), ceftriaxone and azithromycin were initiated. But the day after, the patient was transferred to cardiac care unit due to new left bundle branch block and hypokinesia in echocardiography.

A few hours later, ventricular tachycardia resulted in hypotension; and the patient was complicated with acute tubular necrosis. White blood cell counts rose up to 22,000/ml and 18% band cells. New portable CXR and CT scan revealed more diffuse and extensive alveolar infiltrations (Figures 4 and 5).

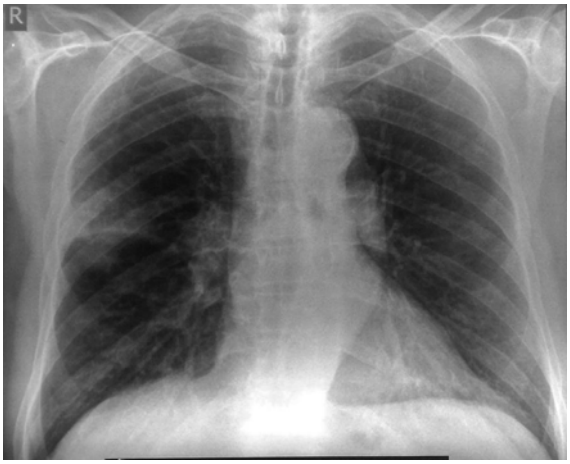

Figure 2. Initial chest X-ray revealed right upper lobe alveolar infiltration.

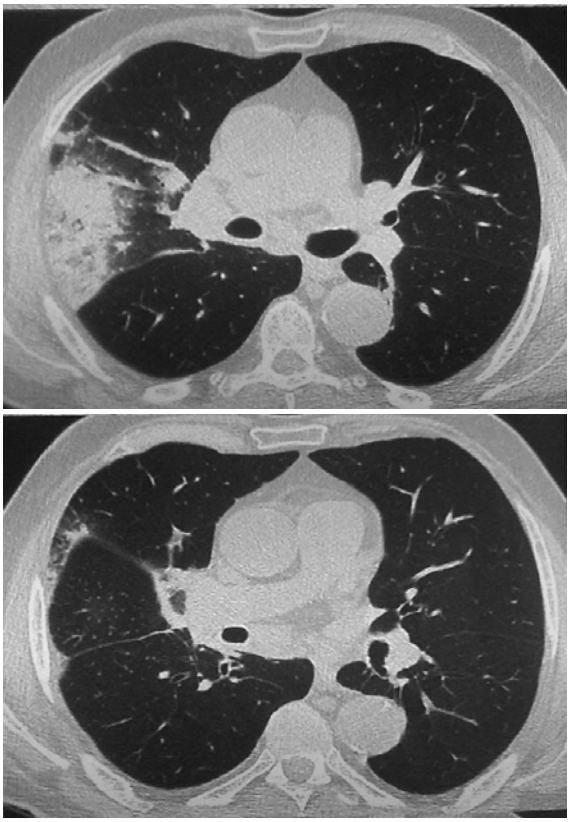

Figure 3. Computed tomography showed lobar infiltration in right upper lobe.

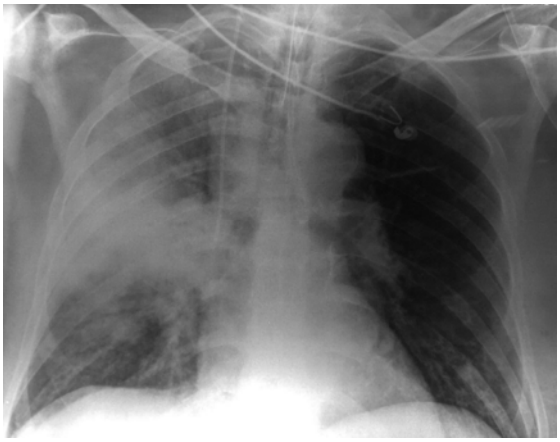

Figure 4. Portable chest X-ray on the second day revealed increased infiltration.

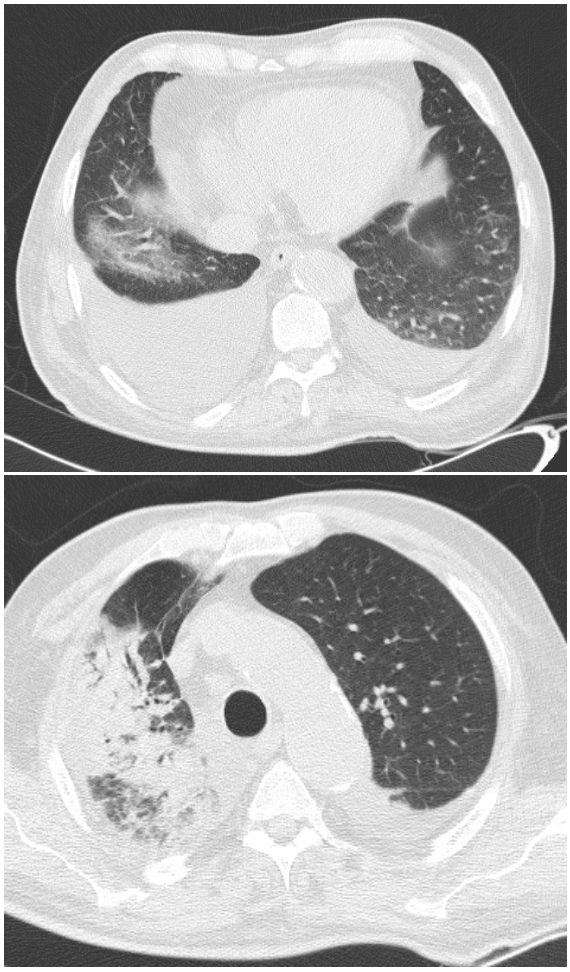

Figure 5. Chest CT-scan on admission in intensive care unit revealed increased alveolar infiltration and bilateral pleural effusion.

The patient was intubated and vancomycin, ciprofloxacin and meropenem were started. Amphotericin B was initiated for one day and then changed to voriconazole; as vancomycin to linezolid. The day after, trimethoprim-sulfamethoxazole (TMP-SMX) was added to the regimen.

Bronchoscopy and bronchoalveolar lavage (BAL) were performed. Blood and BAL cultures revealed heavy growth of *Burkholderia pseudomallei*.

According to the aforementioned culture results, the patient was treated with meropenem and TMP-SMX, while other antibiotics were discontinued.

Fortunately, after 3 weeks, the patient was discharged with stable status and normal pulmonary function; and eradication therapy with TMP-SMX continued for about 3 months. The control lung CT scan after one month demonstrated significant improvement (Figure 6).

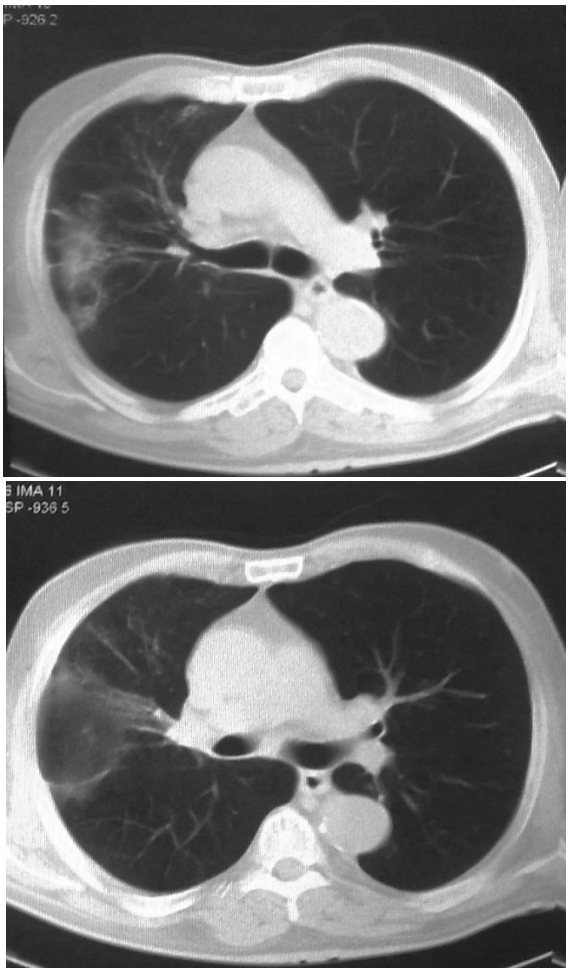

Figure 6. Chest computed tomography 2 months after admission showed ground glass opacities

DISCUSSION

In 1912, the first cases of melioidosis were reported among the population of Rangoon as "an undescribed infective disease" (5).However, after recognition of causative microorganism and development in isolation systems, numerous cases of melioidosis were reported from endemic areas.

The most prevalent endemic areas are the northeast of Thailand and Top End of the Northern Territory of Australia. Also, it can frequently be seen in other regions in the Southeast Asia (2).

Recent reports from Thailand and Australia have attributed 20% and 39% of septicemia and pneumonia to *B. pseudomallei*, respectively (6,7).

Pneumonia is the most common presentation of the disease and usually is marked by a high fever, headache, anorexia, and general muscle soreness. Chest pain is common, but a nonproductive or productive cough with normal sputum is the hallmark of this form of melioidosis. Chronic suppurative infection may mimic tuberculosis, with fever, weight loss, productive cough, and upper lobe infiltrate, with or without cavitation (8).

Diabetes mellitus, excess alcohol intake, chronic renal disease and chronic lung disease, thalassemia, occupational exposure and polymorphonuclear cells dysfunction were confirmed to be significant risk factors for melioidosis and bacteremic melioidosis (9,10). Only diabetes mellitus was a significant factor associated with bacteremic melioidosis, as compared with non-bacteremic type (9). In tropical northern Australia, male sex, aboriginal ethnicity and age more than 45 years are also independent predictors for melioidosis (10).

Ceftazidime is the drug of choice for initial intensive therapy for melioidosis (11). Addition of sulfamethoxazole-trimethoprim for neurologic, cutaneous, bone, joint and prostatic melioidosis is also recommended (12).

Only one case of melioidosis has been reported from Iran (13), two years after isolation of Whitmore bacillus (other name of *B. pseudomallei*) from clay layer of rice fields in Iran (14).However, this was the first human case has been the last one in the literatures.*B. pseudomallei* is not a usual finding for laboratories in non-endemic countries and misidentification of the isolated bacteria as Pseudomonas species may occur(15). Ashdown's medium, a gentamicin-containing liquid transport broth, is the preferred media that results in the selective growth of *B. pseudomallei* (16).

This case is the first bacteremic case of melioidosis reported from Iran. Southeast Asia has increasing numbers of travelers from all over the world including Iran. Therefore, regarding the relatively high prevalence of melioidosis in aforementioned area, physicians and public health providers in non-endemic countries should be alert about the possibility of disease in returning travelers. Travelers, particularly those with risk factors including diabetes, also should be notified about the risk of melioidosis, and evade traveling during rainy seasons to the endemic areas and be careful of skin injuries.

REFERENCES

1. Whitmore A, Krishnaswami CS. An account of the discovery of a hitherto undescribed infective disease occurring among the population of Rangoon. *Indian Med Gaz* 1912; 47:262-7.
2. Cheng AC, Currie BJ. Melioidosis: epidemiology, pathophysiology, and management. *Clin Microbiol Rev* 2005; 18 (2): 383- 416. Erratum in: *Clin Microbiol Rev* 2007; 20 (3): 533.
3. Leelarasamee A, Bovornkitti S. Melioidosis: review and update. *Rev Infect Dis* 1989; 11 (3): 413- 25.
4. Currie BJ, Fisher DA, Howard DM, Burrow JN, Lo D, Selva-Nayagam S, et al. Endemic melioidosis in tropical northern Australia: a 10-year prospective study and review of the literature. *Clin Infect Dis* 2000; 31 (4): 981- 6.
5. Currie BJ. Melioidosis: an important cause of pneumonia in residents of and travellers returned from endemic regions. *Eur Respir J* 2003; 22 (3): 542- 50.
6. Chaowagul W, White NJ, Dance DA, Wattanagoon Y, Naigowit P, Davis TM, et al. Melioidosis: a major cause of community-acquired septicemia in northeastern Thailand. *J Infect Dis* 1989; 159 (5): 890- 9.

7. Currie BJ, Fisher DA, Howard DM, Burrow JN, Selvanayagam S, Snelling PL, et al. The epidemiology of melioidosis in Australia and Papua New Guinea. *Acta Trop* 2000; 74 (2-3): 121- 7.
8. Blaney DD, Gee JE, Smith TL. Melioidosis. Centers for Disease Control and Prevention. Available from: http://wwwnc.cdc.gov/travel/yellowbook/2012/chapter-3-infectious-diseases-related-to-travel/melioidosis.htm
9. Suputtamongkol Y, Chaowagul W, Chetchotisakd P, Lertpatanasuwun N, Intaranongpai S, Ruchutrakool T, et al. Risk factors for melioidosis and bacteremic melioidosis. *Clin Infect Dis* 1999; 29 (2): 408- 13.
10. Currie BJ, Jacups SP, Cheng AC, Fisher DA, Anstey NM, Huffam SE, et al. Melioidosis epidemiology and risk factors from a prospective whole-population study in northern Australia. *Trop Med Int Health* 2004; 9 (11): 1167- 74.
11. White NJ, Dance DA, Chaowagul W, Wattanagoon Y, Wuthiekanun V, Pitakwatchara N. Halving of mortality of severe melioidosis by ceftazidime. *Lancet* 1989; 2 (8665): 697-701.
12. Chierakul W, Anunnatsiri S, Short JM, Maharjan B, Mootsikapun P, Simpson AJ, et al. Two randomized controlled trials of ceftazidime alone versus ceftazidime in combination with trimethoprim-sulfamethoxazole for the treatment of severe melioidosis. *Clin Infect Dis* 2005; 41 (8): 1105- 13.
13. Pourtaghva M, Dodin A, Portovi M, Teherani M, Galimand M. 1st case of human pulmonary melioidosis in Iran. *Bull Soc Pathol Exot Filiales* 1977; 70 (2): 107- 9.
14. Pourtaghva M, Machoun A, Dodin A. Demonstration of Pseudomonas pseudomallei (Whitmore's bacillus) in the mud of Iranian ricefields (author's transl). *Bull Soc Pathol Exot Filiales* 1975; 68 (4): 367- 70.
15. Lowe P, Engler C, Norton R. Comparison of automated and nonautomated systems for identification of Burkholderia pseudomallei. *J Clin Microbiol* 2002; 40 (12): 4625- 7.
16. Ashdown LR. An improved screening technique for isolation of Pseudomonas pseudomallei from clinical specimens. *Pathology* 1979; 11 (2): 293- 7.